IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An X-ray image processing device configured to obtain a plurality of consecutive divisional X-ray images along a longitudinal axis of an examined body, each of the divisional X-ray images overlapping with one or more adjoining X-ray images of the other consecutive divisional X-ray images along a direction in which the divisional X-ray images were obtained, the X-ray image processing device, comprising:

a memory configured to store X-ray image data of the plurality of consecutive divisional X-ray images, the X-ray image data including pixel values;

an ROI setting unit configured to establish a region of interest (ROI) around an ~~inspection areas in overlapped~~ edge line ~~portions between~~ disposed through a center of an overlapping portion between a reference image and an adjoining X-ray image that is read out from the memory, the ROI being less than the entire ~~overlapped edge portions~~ overlapping portion and including portions of both the reference image and the adjoining X-ray image;

an index value calculator configured to determine, for each of the overlapped edge portions, an index value based on the pixel values within the ROI;

a gradation calculator configured to determine display gradations for the image data of the adjoining X-ray images, based on the index value;

a gradation processing unit configured to correct the pixel values for the X-ray image data so that the display gradations of the image data of the adjoining X-ray images substantially coincides; and

a continuous pasting operation unit configured to generate a continuous image by pasting together the X-ray image data of the altered pixel values.

Claim 2 (Previously Presented): The X-ray image processing device according to claim 1, wherein, the index value is selected from the group consisting of:

a mean pixel value within the ROI, a maximum pixel value within the ROI, a minimum pixel value within the ROI, a center pixel value within the ROI, and the most frequent pixel value in the ROI.

Claim 3 (Previously Presented): The X-ray image processing device according to claim 1, wherein the index value calculator is configured to determine the index value based on a histogram of pixel values within the ROI.

Claim 4 (Previously Presented): The X-ray image processing device according to claim 1, wherein the index value calculator is further configured to derive the index value from a reference image corresponding to one of the divisional X-ray images, and wherein the gradation processing unit is configured to successively correct the display gradations so that the display gradations substantially correspond to the index value.

Claim 5 (Previously Presented): The X-ray image processing device according to claim 4, wherein the gradation processing unit is configured to successively correct the display gradations for the adjoining images by shifting a correction function so as to correspond to the gradation of the reference image.

Claim 6 (Previously Presented): The X-ray image processing device according to claim 5, wherein the correction function is a gamma correcting function which is performed by successively correcting the displayed gradations for the adjoining images by shifting a

correction function so as to correspond to the gradation of the reference image.

Claim 7 (Previously Presented): The X-ray image processing device according to claim 6, wherein the gradation processing unit is configured to generate the gamma correcting function for each of the adjoining images by expanding the gamma correcting function for the reference image based on a ratio of the respective index value of an adjoining image to the index value of the reference image.

Claim 8 (Previously Presented): The X-ray image processing device according to claim 1, wherein the gradation processing unit is configured to apply a gamma correcting function to the adjoining images such that a minimum pixel value and an average pixel value obtained at the upper ROI of each of the adjoining images coincides to a minimum pixel value and an average pixel value obtained at the lower ROI of the reference image.

Claim 9 (Currently Amended): An X-ray image processing system for generating a continuous image from a plurality of consecutive divisional X-ray images obtained along a longitudinal axis of an examined body, each of the divisional X-ray images having one or more edge portions overlapped with one or more edge portions of adjoining images of the other divisional X-ray images, and for performing correcting operations on display gradations of the images, the X-ray images processing system comprising;

a memory configured to store image data of the divisional X-ray images;

a region of interest (ROI) setting unit configured to establish at least one ROI around a ~~vertically crossing the~~ edge line ~~portions of~~ disposed through a center of the overlapping edge portions of the divisional X-ray images, the at least one ROI including ~~un-overlapped~~ portions of each of the divisional X-ray images;

a profile forming unit configured to provide, for each of the divisional X-ray images, a pixel value profile of pixels within the ROI;

a gradation processing unit configured to successively correct each of the display gradations for the divisional X-ray images so as to continuously match (A) the display gradation corresponding to the pixel value profile of a reference image among the divisional X-ray images to (B) the display gradation corresponding to the pixel value profile of a divisional image adjoining the reference image; and

a continuous image processing unit configured to generate a continuous image by pasting together the plurality of divisional X-ray images having respective corrected display gradations.

Claim 10 (Original): The X-ray image processing system according to claim 9, wherein the profile forming unit is configured to determine an average value of the pixels along a horizontal direction of the ROI for the plurality of X-ray images.

Claim 11 (Original): The X-ray image processing system according to claim 9, wherein the gradation processing unit applies a gamma correcting function to the divisional X-ray images adjoining the reference image so that the respective pixel value profile of each of the adjoining images substantially matches a pixel value profile of the reference image.

Claim 12 (Original): The X-ray image processing system according to claim 9, wherein the setting unit is configured to establish a plurality of small ROIs, each small ROI crossing over a respective one of the pasting boundary lines of the divisional X-ray images.

Claim 13 (Original): The X-ray image processing system according to claim 12, wherein the ROI setting unit is configured to establish the small ROIs along a straight line or a curved line.

Claim 14 (Previously Presented): The X-ray image processing system according to claim 11, wherein the gradation processing unit is configured to correct the display gradations so that a slope at a lower end value of the pixel value profile of each adjoining image coincides to a slope at an upper end value of the pixel value profile of the reference image.

Claim 15 (Previously Presented): The X-ray image processing system according to claim 9, wherein the continuous image processing unit is configured to vary a weighting coefficient for calculating a weighted average between pixel values of two of the adjoining images in an overlapped portion of the two adjoining images.

Claim 16 (Original): The X-ray image processing system according to claim 15, wherein the weighting coefficient at the overlapped portion of X-ray images varies linearly or non-linearly.

Claim 17 (Currently Amended): An X-ray image processing method configured to obtain a plurality of consecutive divisional X-ray images along a longitudinal axis of an examined body, each of the divisional X-ray images overlapping with one or more adjoining X-ray images of the other consecutive divisional X-ray images along a direction in which the divisional X-ray images were obtained, the X-ray image processing method, comprising:

storing X-ray image data of consecutive divisional X-ray images in a memory;

establishing a region of interest (ROI) around ~~corresponding inspection areas in overlapped~~ an edge line disposed through a center of an overlapping portion ~~portions~~ between a reference image and an adjoining image that is read out from the memory, the ROI being less than the entire ~~overlapped edge portions~~ overlapping portion and including portions of both the reference image and the adjoining X-ray image;

determining, for each overlapped edge portion of the divisional X-ray images, an index value, based on the pixel values within the corresponding ROI;

determining display gradations for the X-ray images, based on the corresponding index values;

correcting the pixel values for the X-ray images so that the display gradations of the adjoining images are substantially uniform; and

generating a continuous image of substantially uniform display gradations by pasting together the divisional X-ray images with corrected display gradations.

Claim 18 (Original): The method for processing X-ray images according to claim 17, wherein the index value is selected from the group consisting of: a mean pixel value, a maximum pixel value, a minimum pixel value, a center pixel value, and the most frequent pixel value in the ROI.

Claim 19 (Original): The method for processing X-ray images according to claim 17, wherein determining the index value comprises determining the index value based on a histogram of pixel values within the ROI.

Claim 20 (Original): The method for processing X-ray images according to claim 17, wherein determining the index value comprises deriving the index value from a reference image among the divisional X-ray images; and

determining the display gradations comprises successively correcting the display gradations so that the display gradations substantially correspond to the index value.

Claim 21 (Original): The method for processing X-ray images according to claim 20, wherein successively performing corrections comprises: shifting a correcting function used to correct the reference image.

Claim 22 (Original): The method for processing X-ray images according to claim 21, wherein the correcting function comprises a gamma correcting function.

Claim 23 (Original): The method for processing X-ray images according to claim 22, further comprising generating the gamma correcting function for each of the adjoining images by expanding the gamma correcting function for the reference image based on a ratio of the respective index value of the adjoining image to the index value of the reference image.

Claim 24 (Original): The method for processing X-ray images according to claim 21, wherein the index value of the adjacent image is selected from the group consisting of:

a minimum pixel value and an average pixel value, obtained at an upper side ROI of the adjoining image; and

the index value of the reference image is selected from the group consisting of a minimum pixel value and an average pixel value, obtained at a lower side ROI of the

reference image.

Claim 25 (Currently Amended): A method for processing X-ray images, comprising:

storing in memory a plurality of X-ray image data corresponding to a plurality of consecutive divisional X-ray images;

establishing at least one region of interest (ROI) around a edge line disposed through a center of overlapping edge portions ~~vertically crossing edges~~ of the divisional X-ray images, the at least one ROI including ~~un-overlapped~~ portions of each of the divisional X-ray images;

generating, for each of the divisional X-ray images, a pixel value profile of pixels within the ROI;

successively correcting display gradations respectively for each of the divisional X-ray images so as to continuously match (A) the display gradation corresponding to the pixel value profile for a reference image among the divisional X-ray images to (B) the display gradation corresponding to the pixel value profile of a divisional X-ray image adjoining the reference image; and

generating a continuous image by pasting together the divisional X-ray images having respective corrected display gradations.

Claim 26 (Original): The method for processing X-ray images according to claim 25, wherein the index value comprises as an average value of the pixel value profile along a horizontal direction of the corresponding ROI.

Claim 27 (Previously Presented): The method for processing X-ray images according to claim 25, further comprising

applying a gamma correcting function to the divisional X-ray images adjoining the reference image so that the respective pixel value profile of each of the adjoining images continuously matches a pixel value profile of the reference image.

Claim 28 (Original): The method for processing X-ray images according to claim 25, wherein establishing at least one ROI comprises establishing a plurality of small ROIs, each of the small ROIs crossing over a respective one of the pasting boundary lines of the divisional X-ray images.

Claim 29 (Previously Presented): The method for processing X-ray images according to claim 25, wherein establishing the plurality of small ROIs comprises establishing the plurality of small ROIs along a straight line or a curved line in the longitudinal direction.

Claim 30 (Original): The method for processing X-ray images according to claim 25, wherein the further comprising

correcting the display gradations so that a slope at a lower end value of the pixel value profile of each adjoining image coincides to a slope at an upper end value of the pixel value profile of the reference image.

Claim 31 (Previously Presented): The method for processing X-ray images according to claim 25, further comprising

generating weighting coefficient for determining a weighted average of pixel values in an overlapping area of two adjoining X-ray images, the weighted average being varied.

Claim 32 (Original): The method for processing X-ray images according to claim 31, wherein the weighting coefficient varies linearly or non-linearly.